

BEFORE THE  
**Federal Communications Commission**

WASHINGTON, D. C. 20554

**RECEIVED**  
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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of  
Amendment of Part 90 of  
the Commission's Rules to Provide  
for the Use of the 220-222 MHz Band  
by the Private Land Mobile  
Radio Service

)  
)  
)  
) PR Docket No. 89-552  
) RM-8506  
)  
)

Implementation of Sections 3(n)  
and 322 of the Communications Act

) GN Docket No. 93-252  
)  
)

Regulatory Treatment of Mobile Services

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Implementation of Section 309(j) of the  
Communications Act -- Competitive  
Bidding, 220-222 MHz

) PP Docket No. 93-253  
)

TO: The Commission

**REPLY COMMENTS OF**  
**FAIRFIELD INDUSTRIES, INC.**

Fairfield Industries, Inc. ("Fairfield"), by its counsel, hereby submits its reply comments in response to the Second Memorandum Opinion and Order and Third Notice of Proposed Rulemaking in the above-captioned proceeding (the "Notice"; FCC 95-312, released August 28, 1995).

At the outset it should be stressed that none of the numerous commenting parties has taken issue with Fairfield's basic proposition; namely, that the geophysical telemetry industry is in need of additional spectrum to facilitate the search for oil and gas

reserves. The fact that more than thirty parties filed comments underscores the degree of consensus on this point.

Of the commenting parties only two expressed concern over the Notice's secondary use proposal.<sup>1/</sup> These commenters argue in conclusory fashion that there would be a risk of interference from secondary operations. For example, ComTech asserts that the "relatively low power level at which the secondary, fixed operations will occur are [sic] still powerful enough to disrupt operations of the primary licensee who will have bid for the use of the spectrum in an auction."<sup>2/</sup>

These concerns are groundless. First of all, the assertion completely ignores the detailed factual information supplied by Fairfield -- data which underscore the de minimis nature of its request and the absence of any realistic prospect for interference. Among other things Fairfield noted that geophysical telemetry operations are self-policing: seismic data collection relies on extremely sensitive equipment; hence, before any data can be collected, telemetry crews must monitor the spectrum carefully and avoid any channel on which they detect the slightest signal. The commenters also overlook the numerous other factors which make interference from geophysical telemetry exceedingly unlikely; i.e., the very low power of Fairfield's telemetry units (less than 2 watts), the non-directional signal propagation, the very low height of the antenna (on the order of five feet above the surface of the water), and the remote, uninhabited areas in which geophysical

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<sup>1/</sup> ComTech Communications, Inc. ("ComTech") and E.F. Johnson Co. The commenters are represented by the same law firm.

<sup>2/</sup> ComTech Comments at 8; see also E. F. Johnson at 6 (generalized assertion about the risk of interference from two and five watt transmitters).

telemetry is typically conducted, such as offshore waters, swamps and marshes, and the North Slope of Alaska. Given the nature of geophysical operations there is no realistic prospect of interference with the operations of primary licensees -- a proposition borne out by the fact to Fairfield's knowledge that there has not been one instance of interference from geophysical telemetry operations in the immediately adjacent 216-220 MHz band.

The other argument is that the legal rights of auction winners for the primary use of the spectrum would somehow be infringed by the secondary use proposal. However, the Communications Act requires the Commission to allocate radio spectrum to serve the public interest. 47 U.S.C. § 303(g). Fairfield's proposal would indeed serve the public interest, for all of the reasons stated in Fairfield's prior filings -- including, in particular, the Clinton Administration's stated goal of encouraging domestic oil and gas production and fostering the growth of new technologies to facilitate that development.<sup>3/</sup> Certainly where a federal agency is charged with allocating spectrum to serve important national priorities -- such as energy independence -- no one can claim a necessary right to use the spectrum free and clear of all other uses no matter how innocuous.

To the extent ComTech "questions why an applicant would even bid on the use of spectrum, knowing that there would potentially be other users....,"<sup>4/</sup> the argument proves too much. Real property is routinely bought and sold at auction and otherwise subject to pre-existing easements and encumbrances. Encumbered spectrum has not only

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<sup>3/</sup> See The Domestic Natural Gas and Oil Initiative: Energy Leadership in the World Economy (December 1993); see excerpts attached.

<sup>4/</sup> Id. at 8.

been auctioned in cases such as PCS (1850-1990 MHz), but is a candidate for auction (such as 1710-1755 MHz to be transferred from the Federal Government encumbered by Federal power systems); more importantly, the very spectrum at issue here is already allocated for (encumbered by) two classes of Federal users, co-primary land mobile at 220-222 MHz and secondary Government radiolocation at 216-225 MHz.

The commenters' real concern would appear to be not so much with Fairfield's proposal, as with the Notice's proposal to allow any and all manner of secondary uses in the band. However, that was not what Fairfield requested, nor has any support been voiced in the opening comments for such a broadening of Fairfield's proposal. If limited to self-policing geophysical telemetry as Fairfield has proposed, the commenters have no legitimate basis for objection.

The only other point that may warrant a reply is the argument by certain 5 kHz equipment manufacturers which object to the proposal to allow aggregation of 5 kHz channels.<sup>5/</sup> Whatever may be the materiality of these objections for the primary licensee arena, they have no application to geophysical telemetry. Geophysical equipment is specially designed for a unique purpose including use under hostile climatic and environmental conditions; moreover the transmitters are engineered to specific standards for seismic data transmission. To impose a 5 kHz -- or other primary licensee-type requirements -- on secondary geophysical telemetry would destroy the utility of the band for oil and gas exploration. Put another way, allowing bandwidth/channeling schemes

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<sup>5/</sup> See, e.g., Comments of SEA Inc., Comments of the Personal Communications Industry Association and Comments of Securicor Radiocom, Ltd.

other than 5 kHz for secondary geophysical telemetry would not undermine the policy of encouraging narrowband technology since geophysical operations would not use 5 kHz equipment in any event.

### **CONCLUSION**

Based on the overwhelming weight of the comments, the following conclusions are clear: (1) the national interest in energy independence will be served by allocating additional spectrum on a secondary basis for geophysical telemetry; (2) the isolated objections to Fairfield's proposal are vague and conclusory, and fail to even address the way in which geophysical telemetry is conducted; and (3) there is no record support for expanding Fairfield's proposal so as to include secondary uses other than geophysical telemetry. Accordingly, for the foregoing reasons, Fairfield urges a prompt grant of its request for a secondary allocation.

Respectfully submitted,

FAIRFIELD INDUSTRIES, INC.

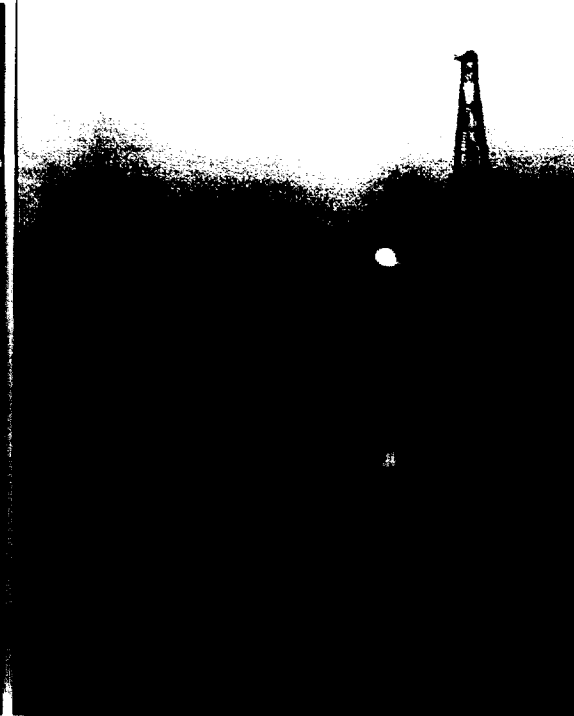
A handwritten signature in black ink, appearing to read "William K. Keane", with a long horizontal flourish extending to the right.

William K. Keane  
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October 12, 1995

Its Counsel



## THE DOMESTIC NATURAL GAS AND OIL INITIATIVE

AN INITIATIVE OF THE U.S. DEPARTMENT OF ENERGY  
AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY

## THE NEED FOR ACTION

**T**he American people have entrusted this Administration with pursuing public policies that help the private sector generate high-wage jobs and a secure economic future. The Federal Government and American citizens are increasingly realizing that this country must compete internationally for jobs, for investment, and for economic growth. Success in that competition will depend, in part, on explicit strategies that emphasize advances in American technology.

Any discussion of jobs, technology, competitiveness, and economic growth must consider the strategic role of energy. This Initiative was developed with the understanding that economic, energy, and environmental objectives can be compatible, and that all activities affecting energy issues need to be integrated. Implementation of the Energy Policy Act of 1992 and many other new programs and

policies that affect transportation and energy use are currently under way (see box below). A strategic combination of efforts will improve the overall effectiveness of how our Nation produces and uses energy, creates jobs, and enhances the quality of life for all Americans.

Natural gas and oil will remain critical components of energy supply in every nation for the foreseeable future. In 1990, U.S. consumers spent over \$300 billion on natural gas and oil — 5.5 percent of the gross domestic product (Figure 1).<sup>1</sup> Imported oil is a significant factor in this total. The United States, long a dominant producer of oil for domestic consumption, has become a mature producing region. As a result, the Nation is increasingly depending on imports from areas with more readily accessible oil.

### Energy Efficiency and Renewable Energy Strategies

Among the most important national energy, environmental, and economic strategies are: to improve the efficiency of the way we utilize natural gas and oil for transportation, industrial, commercial, and residential applications; and to implement policies that allow renewable resources to play a prominent role in the Nation's energy future. This will include more widely adopting waste minimization practices. Within the Department of Energy, overall funding for these activities is estimated to increase by 25 percent in Fiscal Year 1994 over Fiscal Year 1993. Examples of programs benefiting from the increase include the following:

- The **Clean Car Initiative** is dedicated to working with the automobile industry to develop a fuel-efficient car, in order to reduce both our long-run dependence on oil and the associated emission of pollutants.
- The **Climate Change Action Plan** represents the Administration's plan for reducing the growth of gases linked to global warming, with an emphasis on energy efficiency.

- The **Clean Cities Program** and the **Federal Fleet Initiatives** are working to accelerate the introduction of low-pollution alternative fuel vehicles into our urban transportation markets and to reduce the use of oil in transportation.
- The **Natural Gas Utilization Initiative** is focusing DOE's research and development efforts on new and more efficient types of natural gas end-use technologies, such as fuel cells and natural gas appliances, to increase gas use.
- The **Renewable Fuels Programs** are a continuing coordinated effort of the Departments of Energy and Agriculture to explore with industry the cost-effective and environmentally beneficial utilization of agricultural and forestry resources in the manufacture of biofuels and their chemical co-products (e.g., ethanol, methanol, fuel additives, and biodiesel) for transportation, and the generation of electricity for utility applications.

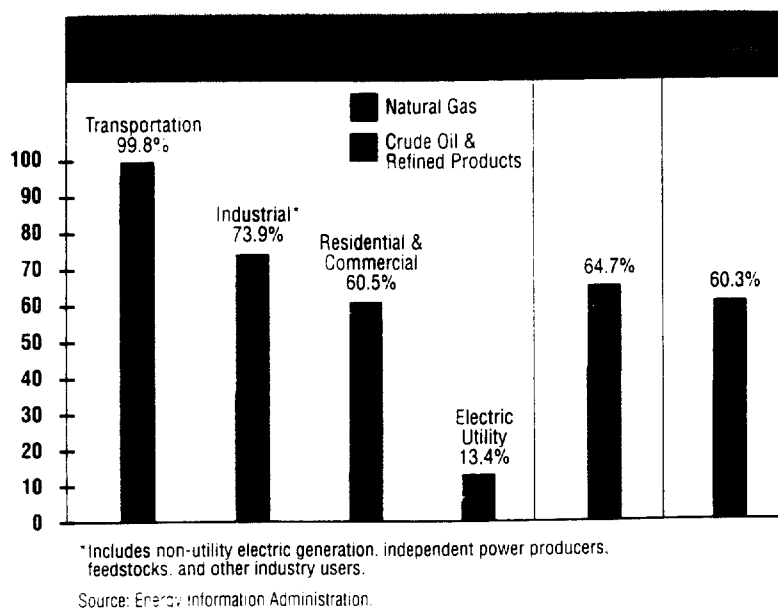
This shift is particularly significant because for over 20 years, costs for imported oil have amounted to more than 60 percent of our trade deficit. Between 1980 and 1992, the United States paid \$742 billion (1987 dollars) to other countries to purchase imported crude oil and petroleum products. In comparison, over the same period Americans paid \$498 billion for imported automobiles. In fact, oil import trends are rising. In 1992, imports accounted for 41 percent of U.S. consumption. The Energy Information Administration projects that by 1995 or 1996 this figure will exceed 50 percent. And by the year 2000, the U.S. Office of Technology Assessment estimates that it could rise to as high as 70 percent.

In the rest of the world, natural gas and oil are equally important commodities, and in some countries they are even more important than in the United States. Worldwide, natural gas and oil will play an ever-increasing role in facilitating economic growth. The developing world will continue to consume increasing amounts of energy. It is hoped that these nations will turn toward renewable and other clean energy sources.

Despite the maturing of the United States as a producing region, the domestic natural gas and oil industry remains an important source of capital formation, technological development, and employment in the American economy. In 1990, the industry invested \$21 billion in infrastructure.<sup>2</sup> And the industry's reliance on advanced technology, in which American firms traditionally have led the world, has been the driving force in numerous technological innovations. In fact, modern natural gas and oil exploration and production represent the quintessential "high tech" industry.

For example, technologies that use state-of-the-art computer mapping of the subsurface for exploration and production are being enhanced through further development in the natural gas and oil industry today. A case in point is known as three-dimensional (3-D) seismic surveying. This procedure provides high-resolution images of subsurface natural gas and oil deposits, thus enabling more efficient and environmentally sound exploration and development resulting in increased reserves and fewer dry holes.

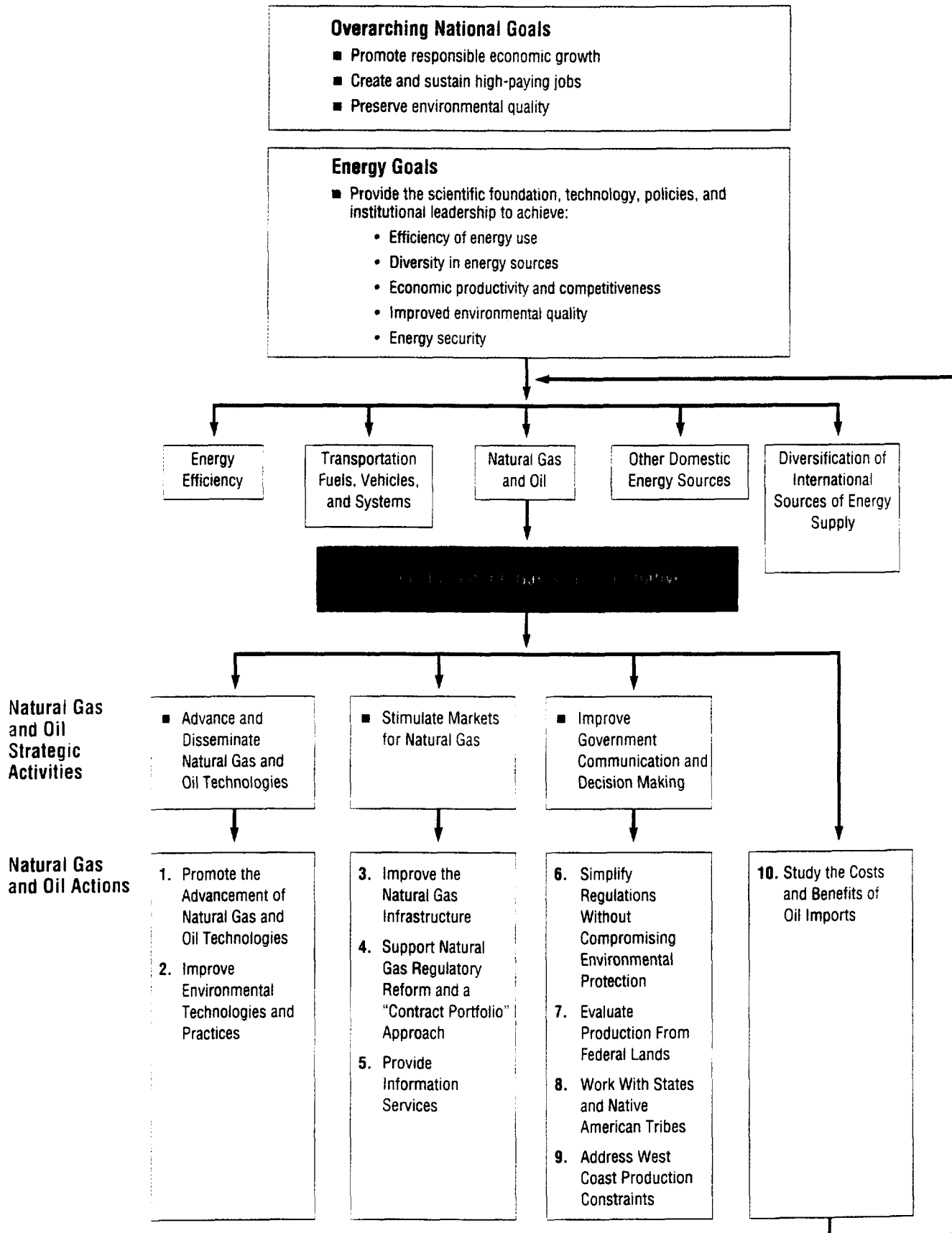
**Figure 1:**  
**1991 Consumption of Natural Gas and Oil as a Percent of Total Energy Consumption**  
Natural gas and oil represent major portions of the energy consumed in the United States and throughout the world.





**Figure 3: The Domestic Natural Gas and Oil Initiative Roadmap**

The Domestic Natural Gas and Oil Initiative flows directly from the Administration's national and energy goals.



## STRATEGIC ACTIVITY 1:

### ADVANCE AND DISSEMINATE NATURAL GAS AND OIL TECHNOLOGIES

**B**enefits from advanced natural gas and oil technologies are representative of the impacts desired in the Administration's technology strategy.<sup>4</sup> By encouraging the use of the most advanced technologies for natural gas and oil production and environmental compliance, these actions bolster progress toward the creation of high-wage employment for U.S. citizens. Investments in technology represent investments in people. Only the superior skills of American workers will keep the domestic natural gas and oil industry at the forefront of international competition for advanced exploration and production services.

This strategic activity is composed of two major actions:

#### **Action 1: Promote the Advancement of Natural Gas and Oil Technologies**

DOE will promote technology through a continuum of complementary actions that include:

- Conducting research and development specifically targeting the needs of smaller producers.
- Participating in a Treasury Department review of tax provisions related to certain advanced technologies and marginal producers.
- Directing customer-oriented technology transfer efforts.
- Developing a strategy for expanding natural gas markets and technologies.

#### **Action 2: Improve Environmental Technologies and Practices**

DOE will also advance technologies that serve the dual needs of environmental protection and cost-effective regulatory compliance.

#### **Action 1: Promote the Advancement of Natural Gas and Oil Technologies**

Multiple activities will support the Administration's efforts to advance the development of natural gas and oil technologies. DOE will work to complement the expenditures of private and public entities.

DOE will directly spearhead the development of several advanced technologies, including computational analysis of geologic or geophysical data to improve drilling success rates, rock drilling systems for natural gas, advanced oil recovery technologies, and analyses of geologic basins to recover bypassed oil.

Additional activities involve developing a natural gas commercialization strategy, establishing a broad technology transfer network, reviewing tax treatments for certain advanced technologies and marginal wells, and using the Naval Petroleum Reserves for technology testing, evaluation, and training.

##### **1.1 Develop an Advanced Computational Technology Initiative**

Advanced computing technologies are revolutionizing the search for natural gas and oil. American national defense labs under DOE jurisdiction — specifically Los Alamos, Sandia, and Livermore — historically have created cutting-edge computer technologies that, in turn, have spurred demand for their application in the private sector. America has made a major investment in applying the scientific capability of the National Laboratories to the development of world-class modeling capabilities. National Laboratory scientists and facilities model complex subsurface conditions for both underground nuclear testing and some current natural gas and oil projects.

To take maximum advantage of these opportunities, DOE will pursue an Advanced Computational Initiative that will enhance, apply, and transfer technologies developed within DOE's National Laboratories to the industry sectors involved in domestic production. It will improve the competitive stance of domestic natural gas and oil companies, and decrease the Nation's dependence on foreign oil. This program will enable industry to capitalize on the capabilities of the National Laboratories in earth sciences, computer science, fluid dynamics, and mathematics to meet specific industry needs. Driven by this particular attention to the needs of the domestic industry, this effort will use such advanced technologies as 3-D seismic and reservoir simulation and characterization to integrate geologic and engineering data and analyses required for the development of domestic natural gas and oil fields (Figure 4).

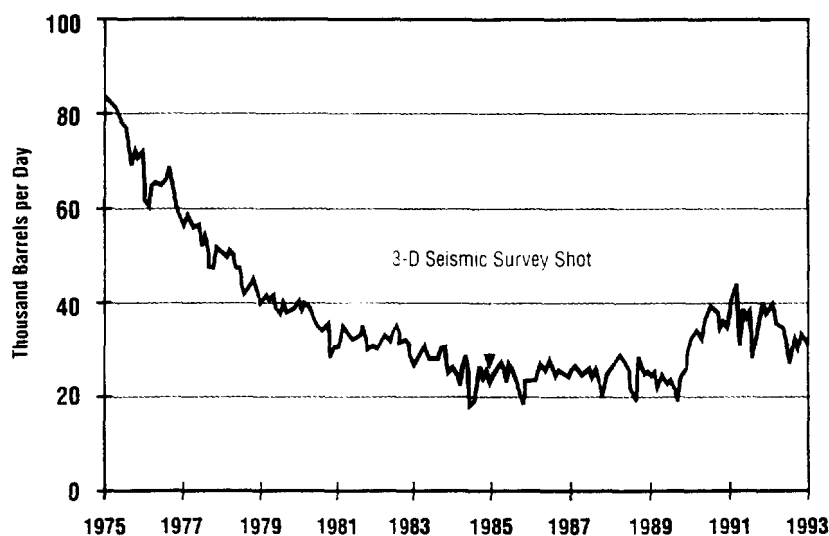
The first phase of the Advanced Computational Initiative will be organized under an expansion of the existing Petroleum Technology Partnership, currently operated for DOE's Office of Fossil Energy by Sandia and Los Alamos National Laboratories. Other National Laboratories will be added to the partnership as appropriate. This Initiative will be driven by an industry forum, which will review and prioritize all proposals, consistent with applicable procurement rules and procedures.

### 1.2 Develop Advanced Rock Drilling Systems for Natural Gas

DOE will initiate a comprehensive program for developing advanced drilling systems to ensure future supplies of natural gas to consumers at a reasonable price. Cost-effective drilling methods in medium- to hard-rock natural gas formations at current natural gas prices offer one of the most significant technological challenges for the domestic natural gas industries. The development of advanced underbalanced air drilling and high-efficiency drilling rig retrofit systems will result in more cost-

Figure 4: Impact of 3-D Technology in the Bay Marchand Field, Louisiana

Bay Marchand Field Monthly Average Production History, 1975-Early 1993.



Source: Dwight's Energydata, Inc., & Energy Information Administration.

Prior to 3-D utilization, production in this field had declined to 20,700 barrels a day in November 1985. Using 3-D technology, the decline in production was reversed, and output more than doubled, rising to 45,200 barrels per day by April 1991. Other case studies suggest that where new undrilled reservoir prospects lie adjacent to producing fields, 3-D technology can improve the discovery success rate by as much as 50 percent.

effective development of natural gas supplies. As the centerpiece of this program, DOE will initiate cost-shared development and field testing of these advanced drilling systems.

### **1.3 Fund Expanded Industry-Driven RD&D for Advanced Oil Recovery Technologies**

DOE's existing program of cost-shared field demonstrations and supporting research will be expanded for a six-year period to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment. Currently, demonstration projects are selected in one new geologic class per year, with supporting research funds at or below historical levels. The program will be expanded in five ways:

- Field demonstrations will be increased to address two geologic classes per year.
- Detailed evaluations of past or ongoing projects will be performed (1) to significantly increase information transfer on the most effective techniques for use under specific conditions, and (2) to define technological challenges for each class not currently being addressed.
- Field-based reservoir characterization and innovative recovery process experiments will be conducted, starting with the highest priority classes, to refine advanced technologies tested in the laboratory.
- Supporting research will be expanded to address industry-identified needs.
- More complete information on technology developments will be disseminated.

### **1.4 Conduct Advanced Geologic Basin Analysis to Target Exploration for Bypassed Natural Gas and Oil**

DOE will lead vigorous geologic analyses of oil-bearing basins in order to open up new paths for oil and associated natural gas discovery. In mature regions, yet-to-be-discovered oil reservoirs tend to be relatively small and difficult to identify. The

most effective way to find more of these reservoirs is through geologic analysis, which extrapolates patterns and similarities from one geologically comparable basin to another. Such analyses will be performed by teams that integrate geologists, engineers, and other geoscientists from industry, the States, the U.S. Geological Survey, and other sources.

### **1.5 Target a Research Program at Specific, Basic Operating Issues of Small Natural Gas and Oil Producers**

DOE will add a component to its oil research program that will specifically address the technical needs of smaller independent natural gas and oil producers. Many of the small producers' everyday technical problems, such as those associated with the operation of marginal wells, could benefit from a disciplined scientific approach to production. For example, introducing some basic computer, scientific, or engineering analyses to independents has allowed them to solve problems at a lower cost.

This effort will be a joint program of DOE's Office of Fossil Energy and Office of Energy Efficiency and Renewable Energy, and will be designed to assemble and/or develop improved operating procedures, equipment modifications, and new equipment, as well as the necessary demonstration and marketing of products for small natural gas and oil operators that reduce costs and facilitate regulatory compliance.

This program will not compete with service companies and consultants. Rather, it will use them to commercialize and disseminate new and underutilized oil products. In particular, it will encourage procedure/product field demonstrations and marketing/manufacturer links with product innovators, researchers, and target operators.

*The Department of Energy will expand its oil R&D program to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment.*

## FOOTNOTES

<sup>1</sup> Energy Information Administration, U.S. Department of Energy, The Annual Energy Review 1992, Table 3.8, page 85.

<sup>2</sup> American Petroleum Institute, Survey of Oil and Gas Expenditures 1990, November 1991, Table ii, page 2.

<sup>3</sup> Bureau of Labor Statistics, U.S. Department of Labor, Current Employment Statistics Survey.

<sup>4</sup> President Clinton and Vice President Gore, "Technology for America's Economic Growth: A New Direction to Build Economic Strength," February 22, 1993.

<sup>5</sup> Bureau of the Census, U.S. Department of Commerce, 1987 Census of Mineral Industries, MIC 87-1-13A, Table 1, page 13A-5.

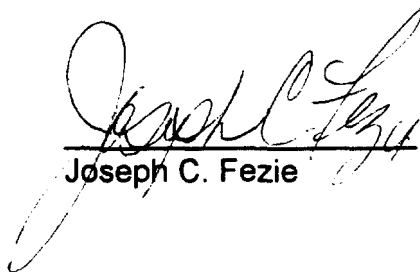
<sup>6</sup> National Petroleum Council, U.S. Petroleum Refining, September 8, 1993.

<sup>7</sup> G. L. Dolton, R. F. Mast, R. A. Crovelli, Estimates of Undiscovered Conventional Resources of Oil and Gas for Federal Lands, and for Indian and Native Lands of the Continental United States, U.S. Geological Survey Open-File Report 90-705, 1990. Table 2, pages 10-12.

**CERTIFICATE OF SERVICE**

I, Joseph C. Fezie, a secretary with Winston & Strawn, hereby certify that true copies of the foregoing "Reply Comments of Fairfield Industries, Inc." have been sent by first-class United States mail, postage prepaid, this 12th day of October, 1995.

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